

5.7 NOISE

5.7.1 Introduction and Methodology

FSEIR #01-01 discussed noise impacts for the development of the Woods and Vistas communities. Many of the noise impact discussions are not applicable to the proposed project site except for noise issues associated with traffic levels on Olympic Parkway. FSEIR #01-01 states that noise levels were anticipated to exceed 65 CNEL from traffic along Otay Lakes Road, a portion of Hunte Parkway and Olympic Parkway. This would be a significant, but mitigable impact to residential units along those roadways. Noise wall locations were provided in FSEIR #01-01, however the proposed project site is not an area identified for a noise attenuation structure. The analysis and discussion of noise contained in FSEIR #01-01 is hereby incorporated by reference.

This section consists of a summary of existing noise conditions, anticipated impacts related to these conditions and mitigation measures required to reduce these impacts to a level below significance. A residual impact statement has been included in order to characterize the level of significance of impacts after mitigation measures have been applied.

The February 2006 Acoustical Assessment prepared for the project by Dudek serves as the main source data for this section. This report is included as *Appendix F* to this EIR. Specific methods used to generate this technical report are contained therein.

5.7.2 Existing Conditions

General Characteristics of Community Noise

To describe environmental noise and to assess project impacts on areas that are sensitive to community noise, a measurement scale that simulates human perception is customarily used. The basic terminology and concepts of noise are described below. Technical terms are defined in *Table 5.7-1, Definitions*.

Sound (noise) levels are measured in decibels (dB). *Table 5.7-2, Typical Sound Levels Measured in the Environment and Industry*, depicts common sound levels for various noise sources. Community noise levels are measured in terms of A-weighted sound level. The A-weighted scale of frequency sensitivity accounts for the sensitivity of the human ear, which is less sensitive to low frequencies, and correlates well with human perceptions of the annoying aspects of noise. The A-weighted decibel scale (dBA) is cited in most noise criteria.

TABLE 5.7-1
Definitions

Term	Definitions
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
A-Weighted Sound Level, dBA	The sound pressure level in decibels as measured on a sound level meter using the A-weighted filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Community Noise Equivalent Level, CNEL	CNEL is the average equivalent A-weighted sound level during a 24-hour day and it is calculated by adding 5 dB to sound levels in the evening (7 pm to 10 pm) and adding 10 dB to sound levels in the night (10 pm to 7 am).
Decibel, dB	A unit for measuring sound pressure level and is equal to 10 times the logarithm to the base 10 of the ratio of the measured sound pressure squared to a reference pressure, which is 20 micropascals.
Equivalent Noise Level, Leq	The sound level corresponding to a steady state sound level containing the same total energy as a time varying signal over a given sample period. Leq is designed to average all of the loud and quiet sound levels occurring over a time period.

Source: Dudek, February 2006.

TABLE 5.7-2
Typical Sound Levels Measured in the Environment and Industry

Noise Source	A-Weighted Sound Level in Decibels	Noise Environment	Subjective Impression
Civil Defense Siren (100 ft.)	130		
	120		Threshold of pain
	110	Rock Music Concert	
Pile Driver (50 ft.)	100		Very loud
Power Lawn Mower (3 ft.)			
Motorcycle (25 ft.)	90	Boiler Room	
Diesel Truck (50 ft.)		Printing Press Plant	
Garbage Disposal (3 ft.)	80		Moderately loud
Vacuum Cleaner (3 ft.)	70		
Normal Conversation (3 ft.)			
	60		
		Department Store	
Light Traffic (100 ft.)	50	Private Business Office	
Bird Calls (distant)	40		Quiet
Soft Whisper	30	Quiet Bedroom	
	20	Recording Studio	
	10		Just Audible
	0		Threshold of hearing

Source: Dudek, February 2006.

People are generally more sensitive and annoyed by noise during the evening and nighttime hours. Thus, another noise descriptor used in community noise assessments, termed the Community Noise Equivalent Level (CNEL), was introduced. The CNEL scale represents a time-weighted 24-hour average noise level based on the A-weighted sound level. CNEL accounts for the increased noise sensitivity during the evening (7:00 pm to 10:00 pm) and nighttime hours (10:00 pm to 7:00 am) by adding five and ten dBs, respectively, to the average sound levels occurring during these hours. Another noise descriptor termed the Day-Night Average Sound Level (Ldn) is also used. The Ldn is similar to CNEL except there is no penalty to the noise level occurring during the evening hours.

Human activities cause community noise levels to be widely variable over time. For simplicity, sound levels are usually best represented by an equivalent level over a given time period (Leq). The Leq, or equivalent sound level, is a single value (in dBA) for any desired duration, which includes all of the time-varying sound energy in the measurement period, usually one hour. The noise level that is exceeded 50 percent of the time (L_{50}) is a level that is normally less than the Leq, except for especially steady noise levels, in which case, it may be similar to or slightly greater than the Leq.

Community noise levels are usually closely related to the intensity of nearby human activity. Noise levels are generally considered low when ambient levels are below 45 dBA, moderate in the 45 to 60 dBA range, and high above 60 dBA. In wilderness areas, the Ldn noise levels can be below 35 dBA. In small towns or wooded and lightly used residential areas, the Ldn is more likely to be around 50 or 60 dBA. Levels around 75 dBA are more common in busy urban areas (e.g., areas located near downtown Chula Vista), and levels up to 85 dBA occur near major freeways and airports. Although people often accept the higher levels associated with very noisy urban residential and residential-commercial zones, they nevertheless are considered to be adverse to public health.

Regulatory Setting

The City of Chula Vista, through the City's Municipal Code (Chapter 19.68.010) has adopted the National Goals for Noise Reduction as set forth by the U.S. Environmental Protection Agency. The City Planning and Building Department has adopted these criteria for residential land use. The maximum allowable noise level for new residential development is 65 dB CNEL at the outdoor usable space area. In addition, State Building Code (Part 2, Title 24, CCR) requires that the interior noise level not exceed 45 dB CNEL for multi-family units. *Table 5.7-3, Exterior Noise Limits*, identifies the exterior noise limits established by the City's Noise Control Ordinance.

TABLE 5.7-3
Exterior Noise Limits

Receiving Land Use Category	Noise Level [dB(A)]	
	10 p.m. to 7 a.m. (Weekdays)	7 a.m. to 10 p.m. (Weekdays)
	10 p.m. to 8 a.m. (Weekends)	8 a.m. to 10 p.m. (Weekends)
All residential (except multiple dwelling)	45	55
Multiple dwelling residential	50	60
Commercial	60	65

The City of Chula Vista adopted exterior land use-noise compatibility standards in the December 2005 General Plan. These standards are shown in *Table 5.7-4, City of Chula Vista Exterior land Use-Noise Compatibility Guidelines*.

TABLE 5.7-4
City of Chula Vista Exterior Land Use-Noise Compatibility Guidelines

Land Use	Annual Community Noise Equivalent Level in Decibels					
	50	55	60	65	70	75
Land Use						
Residential						
Schools, Libraries, Daycare Facilities, Convalescent Homes, Outdoor Use Areas and Other Similar Uses considered Noise Sensitive						
Neighborhood Parks, Playgrounds						
Community Parks, Athletic Fields						
Offices and Professional						
Places of Worship (Excluding outdoor use areas)						
Golf Courses						
Retail and Wholesale Commercial, Restaurants, Movie Theaters						
Industrial, Manufacturing						

Compatible
Incompatible

Source: City of Chula Vista General Plan, December 2005

Also, the City's municipal code (Section 17.24.050) states that power machinery, tools and equipment should not cause noises disturbing to the comfort and repose of any person residing or working in the vicinity, between the hours of 10:00 p.m. and 7:00 a.m., Monday through Friday, and between the hours of 10:00 p.m. and 8:00 a.m., Saturday and Sunday.

Existing Noise Environment

The primary source of existing noise in the project vicinity includes traffic along Olympic Parkway. Additional noise sources in the area include intermittent traffic along Wueste Road and distant traffic along residential roads. The existing average daily traffic (ADT) traffic volume for the portion of Olympic Parkway adjacent to the project site is not available. The closest location to the project site with traffic count data is Olympic Parkway east of Hunte Parkway. For the portion of Olympic Parkway east of Hunte Parkway, the existing traffic volume is approximately 6,000 ADT (Linscott, Law and Greenspan, 2005). Traffic volumes from Wueste Road were not analyzed due to this roadway's low traffic volumes.

In order to determine existing noise levels at the project site, noise measurements were taken at the project on June 28, 2005 between 7:45 and 8:15 a.m. These times were chosen due to the generally higher traffic volumes than at other times of the day. Noise levels were measured approximately 115 feet from the centerline of Olympic Parkway. *Figure 5.7-1, Noise Measurement Locations*, depicts the noise measurement location as Site 1. Concurrent traffic counts were conducted during the noise measurement. The measured average noise level was 52 dB. The measured noise levels and the concurrent traffic volumes are depicted in *Table 5.7-5, Measured Noise Levels and Traffic Volumes*. Sensitive noise receptors are facilities or areas (e.g., residential areas, hospitals, schools, etc.) where excessive noise may convey annoyance. The closest sensitive receptors include residents located approximately 550 feet to the north of Olympic Parkway.

TABLE 5.7-5
Measured Noise Levels and Traffic Volumes

Site	Description	Date Time	L_{eq} ¹	Cars	MT ²	HT ³
1	Approximately 115 feet from the center line of Olympic Parkway	6/28/05 7:45 to 8:15 a.m.	52 dB	29	1	0

Notes: ¹ Equivalent Continuous Sound Level (Time-Average Sound Level)

² Medium Trucks

³ Heavy Trucks

Source: Dudek and Associates, February 2006.

Figure 5.7-1 Noise Measurement Locations

5.7.3 Thresholds of Significance

According to the significance criteria included in Appendix G of the CEQA guidelines, acoustical impacts would be significant if the proposed action would result in:

- 1) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?
- 2) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?
- 3) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?
- 4) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?
- 5) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?
- 6) For a project located within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

5.7.4 Environmental Impacts

Would the project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Noise generated by construction equipment on the project site would occur with varying intensities and durations during the different phases of construction including finish grading, paving and construction of the buildings. The site has been rough-graded. Therefore, noise levels would likely be greatest during the finish grading and building construction activities.

Equipment expected to be used would include tractors, backhoes, graders, pavers, heavy trucks, jack hammers, cranes, air compressors and other related equipment. The noise levels generated by construction equipment would vary greatly depending upon factors such as the type and specific model of the equipment, the operation being performed and the condition of the

equipment. The average sound level of the construction activity also depends upon the amount of time that the equipment operates and the intensity of the construction during the time period. The range of maximum noise levels for various types of construction equipment is depicted in *Figure 5.7-2, Typical Construction Equipment Noise Generation Levels*. Based on known noise levels from typical construction equipment and standard construction practices, maximum noise levels at a distance of 50 feet from the project site would range from approximately 75 to 90 dB (see *Figure 5.7-2*). Typical operating cycles may involve two minutes of full power, followed by three or four minutes at lower levels. The project site has always been planned for development and construction related noise was analyzed in FSEIR #01-01.

Noise sensitive receptors include residents located north of the project site across Olympic Parkway. The closest residences would be located approximately 550 feet or more from the site. Construction noise is attenuated by approximately six dB for every doubling of distance. Thus, assuming no shielding from intervening barriers or buildings, the maximum noise levels from standard construction activities would range up to approximately 70 dB at the closest residences. Construction activities would comply with the City's allowable hours and days of operation which are between the hours of 7:00 a.m. and 10:00 p.m., Monday through Friday, and between the hours of 8:00 a.m. and 10:00 p.m. Saturday and Sunday. In addition, construction activities would be short-term. Therefore, construction related noise would result in a less than significant noise impact.

The project would generate approximately 1,976 ADT and would increase the traffic volume by up to approximately 1,720 ADT along Olympic Parkway. The future buildout traffic volume along Olympic Parkway adjacent to the project site is projected to be approximately 31,800 ADT (LLG 2005). The additional project-generated traffic would increase the existing noise levels along Olympic Parkway by less than one dB CNEL (from 52 dB to approximately 53 dB). A one dB CNEL increase in the noise level would not be perceptible to the human ear. A noise level increase of up to three dB is generally not considered significant. Typically, a three dB change in community noise is considered a just-noticeable difference. The noise level increase associated with the project, shown in *Table 5.7-6, Summary of Project Related Off-Site Traffic Noise Impacts*, would be less than significant. It should be noted that *Table 5.7-6* reflects the worse-case scenario from a project traffic noise contribution standpoint. Once the community is built-out (i.e., ambient traffic levels increase due to more residents, traffic, etc.), the project's audible contribution to the overall noise environment would be less compared to the existing setting (due to less traffic, residents, etc.) analyzed above and reflected in *Table 5.7-6*.

Figure 5.7-2 Typical Construction Equipment Noise Generation Levels

TABLE 5.7-6
Summary of Project Related Off-Site Traffic Noise Impacts

Location	Existing ADT	Existing With Project ADT	Project Contribution ¹ (dB)
Olympic Parkway			
Palomar St. to EastLake Parkway	26,430	27,950	<1
EastLake Parkway to Hunte Parkway	11,130	12,650	<1
East of Hunte Parkway	6,240	7,960	1

Notes: ¹ Existing vs. Existing Plus Project CNEL

Source: Dudek and Associates, February 2006.

It should be noted that under the existing land use designation of Commercial-Tourist, a total of approximately 3,660 ADT would have been added to local roadways. Use of the site as senior residential housing would generate less traffic than use of the site for Commercial-Tourist purposes. The reduction in traffic attributed to the proposed project would correspond to a reduction in noise level associated with project related traffic.

The project site would primarily be affected by traffic along Olympic Parkway. To determine future noise levels that could be experienced on-site, noise modeling was conducted that took into account build-out of the project area and project traffic volumes along Olympic Parkway. It was assumed that the truck mix use along Olympic Parkway would be approximately two percent medium trucks and two percent heavy trucks with a vehicle speed of 45 mph.

The future traffic noise level would range up to approximately 69 dB CNEL at the patio and balcony areas (see *Figure 5.7-3, CNEL Levels*, *Figure 5.7-4, Future Second Floor CNEL* and *Figure 5.7-5, Future Third Floor CNEL*). These noise levels would exceed the City's exterior noise criterion. This would result in a significant impact.

As shown in *Figure 3-7, Site Development Plan*, the common use areas such as the pool would be located within the interior portion of the site. The buildings and/or intervening slope would shield the common outdoor usable space area to a future noise level of less than 65 dB CNEL. Because noise levels would not increase above the allowable 65 dB CNEL, these exterior noise levels would comply with the City's exterior noise requirement.

Figure 5.7-3, Future CNEL Levels

Figure 5.7-4 Future Second Floor CNEL

Figure 5.7-5, Future Third Floor CNEL

The City and State require that interior noise levels not exceed a CNEL of 45 dB within multi-family homes. Typically, with the windows open, building shells provide approximately 15 dB of noise reduction. Therefore, rooms exposed to an exterior CNEL greater than 60 dB could result in an interior CNEL greater than 45 dB. As shown in *Figure 5.7-4, Future Second Floor CNEL*, and *Figure 5.7-5, Future Third Floor CNEL*, the upper floors of Buildings 1, 2 and 13, which are adjacent to Olympic Parkway, would be exposed to traffic noise ranging up to 70 dB CNEL. Because rooms in Buildings 1, 2 and 13 would be exposed to exterior noise levels of greater than 60 dB CNEL, it is anticipated that interior noise levels would exceed City and State requirements of 45 dB CNEL which essentially exceeds allowable limits for operational activities. Therefore, significant interior noise impacts would occur.

Optional Construction Road: The proposed temporary construction road would handle approximately 10 to 25 percent of construction traffic. Ingress and egress of equipment, deliveries and general construction traffic would result in the addition of a temporary new noise source in the Wueste Road area south of the project. Due to the City's noise ordinance which limits construction time periods to daytime hours, these new noise sources would not be considered significant due to the temporary and sporadic nature of the noise.

Optional Pedestrian Trail: During construction, noise would result from grading equipment and vehicular traffic. There may be an occasional sensitive receptor associated with the OTC within the area during construction activity. However, due to the short-term nature of construction and the lack of sensitive receptors within the immediate area, the city's noise ordinance, which is designed to limit construction noise impacts, would reduce any impact to less than significant. Because this trail will be limited to pedestrian traffic, no significant noise levels are anticipated from use of the trail.

Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

Construction of the project will not involve the use of explosives to prepare the site. The proposed senior residential community is not expected to exhibit vibration issues during operation.

Optional Construction Road: Construction of the access road would not necessitate the use of explosives. Therefore, no impacts would occur.

Optional Pedestrian Trail: Construction of the trail would not necessitate the use of explosives. Therefore, no impacts would occur.

Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

See discussion under Significance Threshold #1, above.

Optional Construction Road: This project feature would be temporary, therefore any noise associated with ingress/egress of trucks, equipment and construction workers would not entail a significant permanent increase in ambient noise.

Optional Pedestrian Trail: This project feature would result in periodic noise associated with pedestrians voices. This noise source would be sporadic in nature and would therefore not result in a significant new noise source into the eastern OTC area.

Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

This project may result in a temporary increase in ambient noise levels in the project vicinity above levels existing without the project during construction. Noise may include periodic bursts of a backhoe or mechanical tool being used during construction. However, the City's noise ordinance would ensure that construction traffic would occur during appropriate daytime work hours. The City's noise ordinance would prevent this temporary increase from significantly impacting any sensitive receptors, therefore a less than significant impact would occur.

The proposed project is located next to the OTC which is a generator of periodic sporting events and programs which may be noise generating. Substantial temporary or periodic noise increases would include cheering/crowd noise at an athletic event, public address system noise, etc. Location of residential land uses (such as that proposed on the site) next to this type of facility would not result in significant impacts as these noise-generating events would be temporary and sporadic in nature.

Optional Construction Road: See discussion under Significance Threshold #1, above.

Optional Pedestrian Trail: See discussion under Significance Threshold #1, above.

For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

The proposed project is not within an airport land use plan or in the vicinity of a private airstrip.

Optional Construction Road: See discussion above

Optional Pedestrian Trail: See discussion above.

For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

The proposed project is not within an airport land use plan or in the vicinity of a private airstrip.

Optional Construction Road: See discussion above

Optional Pedestrian Trail: See discussion above

5.7.5 Level of Significance Prior to Mitigation

Potential exposure of future residents to exterior noise levels (from patio and balcony areas) greater than the City's allowable limit of 65 dB CNEL would be considered significant prior to mitigation. Potential exposure to interior noise levels greater than the City's allowable limit of 45 dB CNEL would be considered significant prior to mitigation.

5.7.6 Mitigation Measures

- 5.7-a Prior to issuance of building permits, where exterior noise levels on internal roadways exceed 60 CNEL, additional measures shall be required to attenuate interior noise to the City's 45 CNEL standard, such as inoperable or double-paned windows. For those units that require the windows to be closed to achieve the interior noise standard, forced-air circulation or air conditioning shall be provided by the applicant. An acoustical analysis shall be conducted for Buildings 1, 2 and 13 that are adjacent to Olympic Parkway concurrent with the submittal of construction drawings and shall be approved by the Director of Planning and Building and the Environmental Review Coordinator prior to approval of building permits. The acoustical analysis shall

demonstrate that interior noise levels due to exterior noise sources would be below the 45 CNEL standard.

- 5.7-b Five foot high noise barriers around the perimeter of the individual private patio and balconies at some of the dwelling units in Buildings 1, 2 and 13 (adjacent to Olympic Parkway) would be required to mitigate for traffic noise impacts. Sound walls may be constructed of any masonry material, or material such as tempered glass or Plexiglas with a surface density of at least three pounds per square foot. The sound wall should have no openings or cracks. *Table 5.7-7, Dwelling Units Requiring Sound Walls around Patios or Balconies*, provides a summary of required walls that would achieve 65 CNEL at the exterior patios/balconies.

TABLE 5.7-7
Dwelling Units Requiring Sound Walls Around Patios or Balconies

Building	Unit Number	Floor
1	104	1
1	204	2
1	302-306	3
1	402-406	4
2	409	4

Source: Dudek & Associates, February 2006.

5.7.7 Significance of Impacts after Mitigation

With implementation of noise mitigation provided in *Section 5.7.6, Mitigation Measures*, noise impacts would be less than significant.